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ABSTRACT

This longitudinal study of 10 infants in a day care nursery traces the development of recognition and attachment to a primary caregiver from approximately 3 1/2 months of age (shortly after enrollment in the program) through the end of the first year. Monthly assessments of about 10 minutes each, on two successive days, were made of the infant's recognition of and attachment to their primary caregivers. Examined were infant responses to the approach of the caregiver as compared to the approach of a stranger, responses to the mother's departure when the infant was left with the caregiver as compared to being left with a stranger, and the infant's response to being left with a stranger by the caregiver as compared to being left with a stranger by the mother. Results indicate that: (1) as the child grows, the response to a stranger becomes increasingly less positive when compared to response to the caregiver, which remains neutral; (2) infants' response to their mothers leaving them with a stranger show increasing evidence of distress, starting at 7 months and increasing, while infants continue to remain generally comfortable when left with the caregiver; (3) around 6 to 7 months of age, infants show equivalent negative reactions when being left with a stranger by either the mother or the caregiver. A discussion reviews the results in relation to day care services. (SB)

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DEVELOPMENT OF ATTACHMENT TO CAREGIVERS IN AN INFANT NURSERY DURING THE FIRST YEAR OF LIFE[1,2]

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The early development of social attachments in human infancy represents a research area of continuing high interest, judging from the number and diversity of recent studies dealing with various aspects of this problem. Along with systematic theoretical discussions of the concepts of attachment and dependency (Ainsworth, 1972), investigators have been concerned with more careful analyses of methodological issues involved in the assessment of attachment (Coates et al., 1972; Masters and Wellman, 1973), with the influence of situational factors (Ainsworth and Bell, 1970; Corter et al., 1972), with the possible effects of sex and social class differences (Messer and Lewis, 1972), with considerations of the range of significant persons to whom infants may become attached (Schaffer and Emerson, 1964), etc.

With the increasing development of day care programs for toddlers and infants, there has been renewed interest in the possible impact of group care experience early in life upon the infant's social behavior and social attachments. One of the questions of interest concerns the matter of whether

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experience in group day care during the first year or two of life significantly affects the infant's attachment to his parents and family (Blehar, 1973; Caldwell et al., 1970). A related issue is concerned more directly with the question of how one might ensure that the infant's experience in a group care environment might enhance, rather than diminish, the infant's potential for developing focussed relationships with significant adults, including his family.

Most people who have been concerned with the provision of developmentally facilitating group care for infants feel rather strongly that there should be a relatively small number of different caregivers involved in the infant's care, so that with appropriate stability and continuity in the caregiving staff, infants will come to recognize the particular adult or adults primarily responsible for their care, and thus the development of appropriate feelings of confidence, trust, and perhaps even affection for their caregivers might be facilitated.

The present study represents a preliminary report of an investigation dealing with one aspect of this broad question. Our purpose was to trace longitudinally the development of infants' recognition of and attachment to their particular caregivers in a day care nursery, from approximately 3½ months of age, shortly after enrollment in the program, through the end of the first year.

Subjects

Subjects were ten infants in the Cornell Experimental Infant Nursery, five enrolled in a morning group, five in an afternoon group, attending daily sessions of about four hours' duration. Each group of infants was cared for by two caregivers over the ten-month period of the study, with

each caregiver having primary responsibility for two or three infants, although there was relatively frequent interchanging of caretaking responsibilities. Other adults associated with our program came into the nursery from time to time, so that the infants had ample opportunity to see other adults besides the two caregivers.

Procedure

Beginning when each infant was about 4 months old, once a month upon arrival at the nursery the parent took the infant to a special playroom, where a systematic assessment of the infant's recognition of and attachment to his primary caregiver was carried out. These monthly assessments took approximately ten minutes, and were carried out on two successive days. Our experimental procedure can be described briefly as follows (Table 1):

On Day C (shown on left of Table 1), after the mother and infant had adapted to the playroom for several minutes, the infant's caregiver entered and greeted the baby from 5 or 6 feet away, then approached closer to the infant while continuing to chat naturally, finally reaching out and touching the baby gently while talking. This approach sequence, which is carefully structured but quite naturalistic, takes about 40 seconds. The caregiver then sits down several feet away from the baby and chats naturally with the mother for about half a minute.

At this point, the mother tells the baby: "I'm going to have to go out for a few minutes now, but I'll be back." Then she walks to the door, calls goodbye, and leaves the room.

After half a minute or so, a trained female stranger enters the room, greets the baby gently but warmly from a distance, and follows the same sequence in approaching and talking to the infant as that previously followed

by the caregiver.

The stranger then sits down and chats with the caregiver for about half a minute, at which point the caregiver says goodbye to the baby and leaves the room, the infant remaining with the stranger. After another half minute the mother re-enters the room and greets the baby with "Hi, honey -- I told you I'd be back after a little while and here I am," and she generally follows the same approach sequence as previously described.

While this experimental sequence may sound a bit like a game of musical chairs, it actually progresses quite smoothly, and the entire session normally takes no more than ten minutes or so. The procedure is repeated on a second day, Day S (shown on the right side of the table), but with the stranger approaching the infant first, instead of the caregiver. Thus, on Day S when the mother departs temporarily she leaves the infant with the stranger, rather than with the familiar caregiver as on Day C.

At each monthly assessment, half the infants had Day C first, followed by Day S, half had the reverse order. Also, for each infant the order of Day C and Day S were alternated on successive monthly sessions.

Observations

Throughout the experimental sequence, two observers independently rated the infants' visual and manipulative or postural responses on an approach-withdrawal continuum, as well as the infants' affective responses on a pleasure-displeasure continuum. Ratings on each of these three dimensions were dictated into a tape recorder approximately every 10 to 12 seconds, during designated segments of the approach and departure sequence being followed by the caregiver, stranger, and mother. (Inter-observer reliability was satisfactorily high, typically > .90, and the ratings from

the two observers were averaged for each segment of the experimental sequence.)

In the present report, we are considering only results obtained with regard to the infants' affective responses. These were rated on a carefully defined scale in which positive affect is indicated primarily by smiling, positive vocalizations, and accompanying activity increases or approach responses; negative affect by distress vocalizations, clear facial expressions of distress, and accompanying withdrawal or avoidance responses. Sober-attentive facial expressions were rated as neutral affectively.

Comparisons made

The experimental procedure outlined in the table permits us to make a number of comparisons of the infants' affective responses during various segments of the experimental situation. In this report, we are concentrating on three such comparisons, which are indicated by the arrows in the center of the table:

(1) First, we compared the infants' affective responses to the initial approach of the caregiver on Day C with respones to the stranger on Day S. We anticipated here that sometime after the first four months, the infant ought to begin showing evidence of discriminating the caregiver from a stranger, perhaps through more positive greeting responses to the caregiver, which would be suggestive of recognition of the caregiver as familiar.

(2) Second, we examined the infants' responses to the mother's departure when the infant was left with the caregiver on Day C, as compared with being left with the stranger on Day S. Our expectation here was that when infants reached the point where some distress at separation from mother might be anticipated, this distress should be substantially less, if present at all, when the infant is left with a person who has become familiar to him as a

significant caregiver.

(3) Third, in order to obtain additional evidence concerning the familiar caregiver's role as a significant attachment figure for the infant, we compared the infants' responses to being left with a stranger by the caregiver on Day C with reactions to being left by the mother on Day S.

Results

Figure 1 presents the results of our first comparison, in terms of the mean ratings of the infants' affective responses to the first approach of the caregiver (solid line) and to the first approach of the stranger (dotted line), plotted over the period from 4 to 12 months of age. During the first several months, it is quite clear that the infants responded quite positively to both the caregiver and the stranger. After 7 months, however, while responses to the caregiver continued at the same generally positive level, the infants' responses to the stranger's approach became increasingly less positive, moving gradually into the affectively neutral to slightly negative range. It should be noted, however, that the mean response to the stranger never became clearly negative, even by 12 months of age. (Differences between the two curves are significant at the .001 level when the 8 to 12 month data are pooled, and all but one of the five monthly comparisons involved here are significant at the .05 level or better.)

Turning next to our second comparison, Figure 2 presents the average affective responses to mother's departure when the infant was left with the caregiver (solid line) or with the stranger (dotted line). As one might anticipate, up through 6 months of age, the infants' responses to mother's temporary departure were essentially neutral, and the two curves

are virtually indistinguishable. However, starting at 7 months, the infants began to show increasing evidence of distress reactions when left with the stranger, and these reactions became most pronounced at 10, 11, and 12 months. On the other hand, they continued to remain generally comfortable when left with the familiar caregiver during this period, except at 12 months, where they showed some negative reactions. Even at this point, however, the infants responded more negatively when left with the stranger rather than the caregiver. (Pooling the data for the 8 to 12 month period indicates that the two curves are significantly different ($P < .005$), although only one of the monthly comparisons was significant (10 months, $P < .025$).)

Our final comparison dealt with the question of whether the infants show separation distress when the familiar caregiver leaves them alone with a stranger. These responses are shown in the solid line in Figure 3, where they can be compared with the curve depicting the infants' responses when mother leaves them alone with a stranger (dotted line, as previously shown in Figure 2). It is readily apparent that these two curves are essentially indistinguishable. At around 6 to 7 months of age, the infants began to show increasingly negative separation reactions, which became most marked by the end of the first year, and which were generally equivalent whether the familiar caregiver or the mother left the infant with a stranger.

Discussion

The results summarized in the three graphs just discussed provide evidence that stability and continuity in caregivers permits infants in group day care settings to build up a sense of familiarity with and a positive responsiveness to their particular caregiver. More positive reactions to a familiar caregiver than to a stranger become quite clearly

differentiated shortly after 7 months of age.

Moreover, positive experiences with familiar caregivers also appear to facilitate the infants' daily transitions from home and family to the day care environment, particularly in the second half of the first year, when the infants showed generally little or no separation distress when mother left them with the caregiver, in contrast with their more marked negative reactions to being left with a stranger.

The fact that by 12 months of age there were some negative reactions even when the infants were left with the caregiver suggests that the onset of separation distress, as one manifestation of an emerging maternal attachment, follows a relatively stable developmental course, which was observable, although attenuated, even under the relatively favorable circumstances of separation to a familiar caregiver. This would again seem to underscore the importance of stability of caregivers in infant day care.

Finally, additional evidence that the familiar caregiver becomes a significant attachment figure for the infant in day care is provided by the observations of distress reactions to separation from the caregiver, which followed a developmental pattern very similar to that of maternal separation reactions when the infant was left with a stranger.

Taken in summary, we view the results of our study thus far as confirming the importance of providing a relatively high degree of continuity and stability in the staff responsible for the care of infants in day care settings.

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Table 1

EXPERIMENTAL PROCEDURE

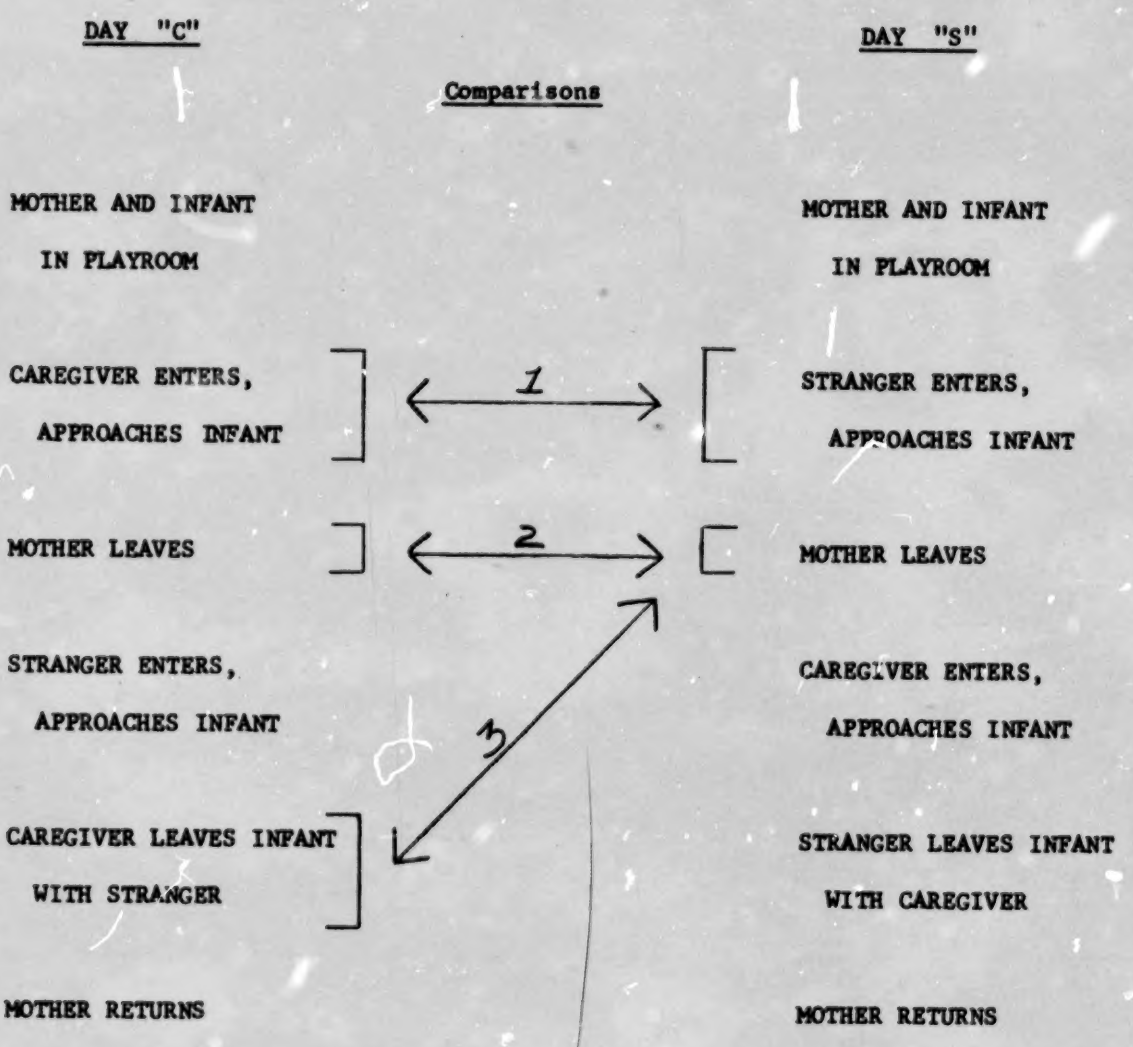

FIGURE 1

AFFECTIVE RESPONSE TO FIRST APPROACH OF CAREGIVER AND STRANGER

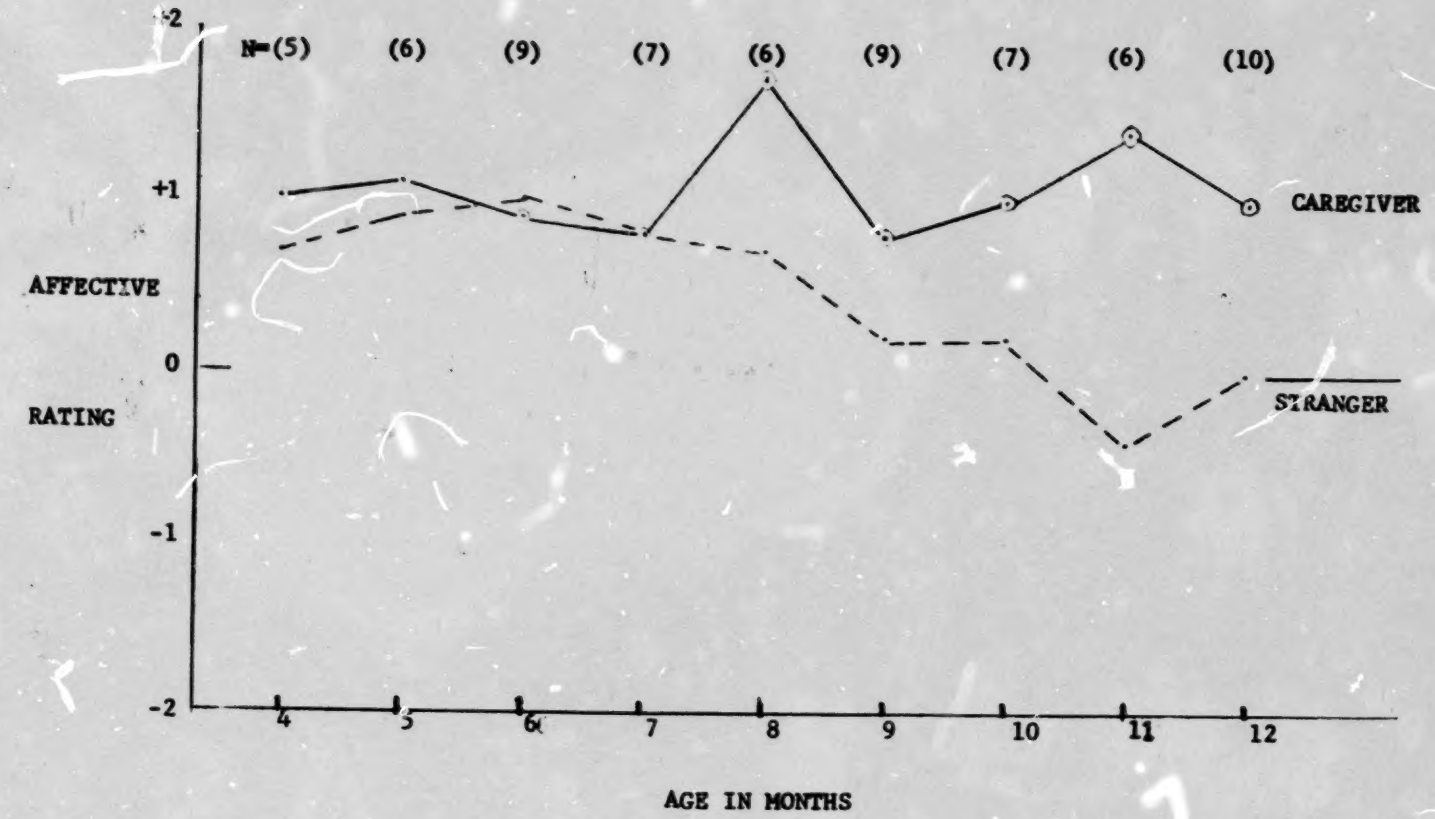

FIGURE 2

AFFECTIVE RESPONSES TO MOTHER'S DEPARTURE WHEN INFANT IS LEFT WITH CAREGIVER OR WITH STRANGER

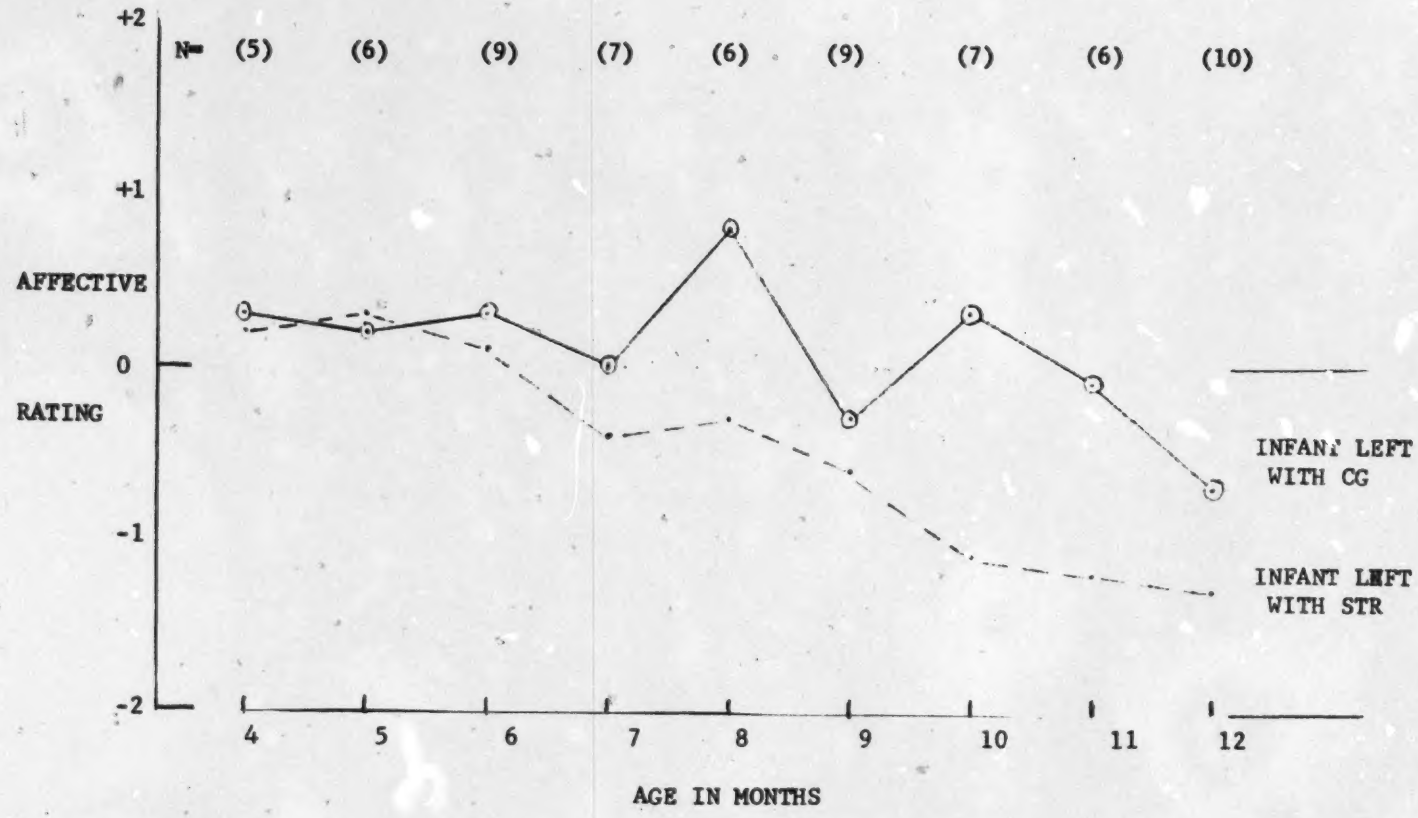

FIGURE 3

AFFECTIVE RESPONSES TO MOTHER'S DEPARTURE AND TO CAREGIVER'S DEPARTURE, INFANT LEFT WITH STRANGER